(5) Be capable of speaking and understanding, in English, all instructions needed to commence, conduct, and complete a transfer of cargo, and of reading the English found in the Declaration of Inspection, vessel response plans, and Cargo Information Cards.

(e) The restricted ''Tankerman-PIC (Barge)'' endorsement restricted to a tank-cleaning and gas-freeing facility is valid only while the applicant is employed by the operator of the facility that provided the letter of service required by paragraph (d)(4) of this section, and this and any other appropriate restrictions will appear in the endorsement.

(f) Because the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), does not recognize restricted Tankerman-PIC endorsements, persons may act under these only aboard vessels conducting business inside the Boundary Line.

[CGD 79–116, 60 FR 17142, Apr. 4, 1995, as amended by CGD 79–116, 62 FR 25128, May 8, 1997]

§§ 13.113–13.117 [Reserved]

§ 13.119 Expiration of endorsement.

An endorsement as tankerman is valid for the duration of the MMD.

§ 13.120 Renewal of endorsement.

An applicant wishing to renew a tankerman's endorsement shall meet the requirements of § 12.02–27 of this chapter for renewing an MMD and prove either participation in at least two transfers within the last 5 years in accordance with § 13.127(b) or completion of an approved course as described in § 10.304.

[CGD 79–116, 62 FR 25130, May 8, 1997]

§ 13.121 Courses for training tankerman.

(a) This section prescribes the requirements, beyond those in §§ 10.203 and 10.303 of this chapter, applicable to schools offering courses required for a tankerman endorsement and courses that are a substitute for experience with transfers of liquid cargo in bulk required for the endorsement.

(b) Upon satisfactory completion of an approved course, each student shall receive a certificate, signed by the head of the school offering the course or by a designated representative, indicating the title of the course, the duration, and, if appropriate, credit allowed towards meeting the transfer requirements of this part.

(c) A course that uses simulated transfers to train students in loading and discharging tank vessels may replace up to 2 loadings and 2 discharges, 1 commencement and 1 completion of loading, and 1 commencement and 1 completion of discharge required for a Tankerman-PIC or Tankerman-PIC (Barge) endorsement. The request for approval of the course must specify those segments of a transfer that the course will simulate. The letter from the Coast Guard approving the course will state the number and kind of segments that the course will replace.

(d) The course in liquid cargo required for an endorsement as—

(1) ''Tankerman-PIC DL'' is Tankship: Dangerous Liquids;

(2) ''Tankerman-PIC (Barge) DL'' is Tank Barge: Dangerous Liquids;

(3) ''Tankerman-PIC LG'' is Tankship: Liquefied Gases;

(4) ''Tankerman-PIC (Barge) LG'' is Tank Barge: Liquefied Gases;

(5) ''Tankerman-Assistant DL'' is Familiarization with DL Tankship; and

(6) ''Tankerman-Assistant LG'' is Familiarization with LG Tankship.

(e) The course in firefighting required for an endorsement as—

(1) ''Tankerman-PIC (Barge)'' is Tank Barge: Firefighting; and

(2) ''Tankerman-PIC'', ''Tankerman-Assistant'', and ''Tankerman-Engineer'' is a firefighting course that meets the basic firefighting section of the IMO's Resolution A.437 (XI), ''Training of Crews in Fire Fighting''.

(f) No school may issue a certificate unless the student has successfully completed an approved course with the appropriate curriculum outlined in Table 13.121(f) or § 13.121(h).

(g) An organization with a course in DL or LG or a course in tank-barge firefighting taught before March 31, 1996, that substantially covered the material required by Table 13.121(f) for liquid cargoes, Table 13.121(g) for firefighting, or § 13.121(h) for familiarization with tankships, may seek approval

under §10.302 of this chapter from the Coast Guard for any course taught up to ten years before March 31, 1996.

(h) The Coast Guard will evaluate the curricula of courses for Familiarization with DL and LG Tankships to ensure adequate coverage of the required subjects. Training may employ classroom instruction, demonstrations, or simulated or actual operations.

(1) The curricula of courses for Familiarization with DL Tankships must consist of the following:

(i) General characteristics, compatibility, reaction, firefighting, and safety precautions for bulk liquid cargoes defined as DL in this part.

(ii) Terminology of tankships carrying oil and other chemicals.

(iii) General arrangement and construction of cargo tanks, vapor control, and venting.

(iv) Cargo-piping systems and valves.

(v) General operation of cargo pumps.

(vi) General discussion of the following operations connected with the loading and discharging of cargo:

(A) Pre-transfer inspection and conference and Declaration of Inspection.

(B) Lining up of the cargo and vapor-control systems and starting of liquid flow.

(C) Connecting and disconnecting of cargo hoses and loading arms.

(D) Loading.

(E) Ballasting and de-ballasting.

(F) Discharging.

(G) Tank-gauging (open and closed).

(vii) Rules of the Coast Guard governing operations in general and prevention of pollution in particular.

(viii) Prevention and control of pollution.

(ix) Emergency procedures.

(x) Safety precautions relative to:

(A) Entering cargo tanks and pump room.

(B) Dangers of contact with skin.

(C) Inhalation of vapors.

(D) Protective clothing and equipment.

(E) Hot work.

(F) Precautions respecting electrical hazards, including hazards of static electricity.

(xi) General principles and procedures of Crude-Oil Washing (COW) Systems and inert-gas systems.

(xii) Tank-cleaning procedures and precautions.

(xiii) Principles and procedures of vapor-control systems.

(xiv) Cargo-hazard-information systems.

(2) To ensure adequate coverage of the required subjects, training may employ classroom instruction, demonstrations, or simulated or actual operations. The curricula of courses for Familiarization with LG Tankships must consist of the following:

(i) General characteristics, compatibility, reaction, firefighting, and safety precautions for cargoes defined as LG in this part.

(ii) Terminology of tankships carrying LG.

(iii) Physical properties of LG.

(iv) Potential hazards and safety precautions of LG:

(A) Combustion characteristics.

(B) Hot work.

(C) Results of release of LG to the atmosphere.

(D) Health hazards (skin contact, inhalation, and ingestion).

(E) Protective clothing and equipment.

(F) Tank-entry procedures and precautions.

(G) Thermal stresses.

(H) Precautions respecting electrical hazards, including hazards of static electricity.

(v) Cargo-containment systems.

(vi) General arrangement and construction of cargo tanks.

(vii) Cargo-piping systems and valves.

(viii) Instrumentation:

(A) Cargo-level indicators.

(B) Gas-detecting systems.

(C) Systems for monitoring temperatures of hulls and cargoes.

(D) Automatic shut-down systems.

(ix) Heating systems for cofferdams and ballast tanks.

(x) General discussion of the following operations connected with the loading and discharging of cargo:

(A) Pre-transfer inspection and conference and Declaration of Inspection.

(B) Lining up of the cargo and vapor-control systems and starting of liquid flow.

(C) Connecting and disconnecting of cargo hoses and loading arms.

(D) Loading.
(E) Ballasting and de-ballasting.
(F) Discharging.
(xi) Disposal of boil-off.
(xii) Emergency procedures.
(xiii) Rules of the Coast Guard governing operations in general and prevention of pollution in particular.
(xiv) Principles and procedures of IGSs.
(xv) Tank-cleaning procedures and precautions.
(xvi) Principles and procedures of vapor-control systems.
(xvii) Cargo-hazard-information systems.
(i) A company that offers approved DL training for its employees shall ensure discussion of the following topics (further discussed in STCW Regulation V, Section A-V/1, paragraphs 9 through 21):
(1) Treaties and rules.
(2) Design and equipment.
(3) Cargo characteristics.
(4) Ship operations.
(5) Repair and maintenance.
(6) Emergency procedures.
(j) A company that offers approved LG training for its employees shall ensure discussion of the following topics (further discussed in STCW Regulation V, Section A-V/1, paragraphs 22 through 34):
(1) Treaties and rules.
(2) Chemistry and physics.
(3) Health hazards.
(4) Cargo containment.
(5) Pollution.
(6) Cargo-handling systems.
(7) Ship operations.
(8) Safety practices and equipment.
(9) Emergency procedures.
(10) General principles of cargo operations.

TABLE 13.121(F)

Course topics	1	2	3	4
General characteristics, compatibility, reaction, firefighting procedures, and safety precautions for the cargoes of:				
Bulk liquids defined as Dangerous Liquids in 46 CFR Part 13	x	x		
Bulk liquefied gases & their vapors defined as Liquefied Gases in 46 CFR Part 13			x	x
Physical phenomena of liquefied gas, including:				
Basic concept			x	x
Compression and expansion			x	x
Mechanism of heat transfer			x	x
Potential hazards of liquefied gas, including:				
Chemical and physical properties			x	x
Combustion characteristics			x	x
Results of gas release to the atmosphere			x	x
Health hazards (skin contact, inhalation, and ingestion)			x	x
Control of flammability range with inert gas			x	x
Thermal stress in structure and piping of vessel			x	x
Cargo systems, including:				
Principles of containment systems	x	x	x	x
Construction, materials, coating, & insulation of cargo tanks			x	x
General arrangement of cargo tanks	x	x	x	x
Venting and vapor-control systems	x	x	x	x
Cargo-handling systems, including:				
Piping systems, valves, pumps, and expansion systems	x	x	x	x
Operating characteristics	x	x	x	x
Instrumentation systems, including:				
Cargo-level indicators	x	x	x	x
Gas-detecting systems	x		x	x
Temperature-monitoring systems, cargo	x		x	x
Temperature-monitoring systems, hull			x	x
Automatic-shutdown systems	x		x	x
Auxiliary systems, including:				
Ventilation, inerting	x	x	x	x
Valves, including:				
Quick-closing	x	x	x	x
Remote-control	x	x	x	x
Pneumatic	x	x	x	x
Excess-flow	x	x	x	x
Safety-relief	x	x	x	x
Pressure-vacuum	x	x	x	x
Heating-systems: cofferdams & ballast tanks			x	x
Operations connected with the loading and discharging of cargo, including:				
Lining up the cargo and vapor-control systems	x	x	x	x
Pre-transfer inspections and completion of the Declaration of Inspection	x	x	x	x

TABLE 13.121(F)—Continued

Course topics	1	2	3	4
Hooking up of cargo hose, loading arms, and grounding-strap	x	x	x	x
Starting of liquid flow	x	x	x	x
Calculation of loading rates	x		x	
Discussion of loading	x	x	x	x
Ballasting and deballasting	x	x	x	x
Topping off of the cargo tanks	x	x	x	x
Discussion of discharging	x	x	x	x
Stripping of the cargo tanks	x	x		
Monitoring of transfers	x	x	x	x
Gauging of cargo tanks	x	x	x	x
Disconnecting of cargo hoses or loading arms	x	x	x	x
Cargo-tank-cleaning procedures and precautions	x	x		
Operating procedures and sequence for:				
Inerting of cargo tanks and void spaces	x	x	x	x
Cooldown and warmup of cargo tanks			x	x
Gas-freeing	x	x	x	x
Loaded or ballasted voyages	x		x	
Testing of cargo-tank atmospheres for oxygen & cargo vapor	x	x	x	x
Stability and stress considerations connected with loading and discharging of cargo	x	x	x	x
Loadline, draft, and trim	x	x	x	x
Disposal of boil-off, including:				
System design			x	x
Safety features			x	x
Stability-letter requirements	x		x	
Emergency procedures, including notice to appropriate authorities, for:				
Fire	x	x	x	x
Collision	x	x	x	x
Grounding	x	x	x	x
Equipment failure	x	x	x	x
Leaks and spills	x	x	x	
Structural failure	x	x	x	x
Emergency discharge of cargo	x	x	x	x
Entering cargo tanks	x	x	x	x
Emergency shutdown of cargo-handling	x	x	x	x
Emergency systems for closing cargo tanks	x	x		
Rules & regulations (international and Federal, for all tank vessels) on conducting operations and preventing pollution	x	x	x	x
Pollution prevention, including:				
Procedures to prevent air and water pollution	x	x	x	x
Measures to take in event of spillage	x	x	x	x
Danger from drift of vapor cloud	x	x	x	x
Terminology for tankships carrying oil and chemicals	x			
Terminology for tank barges carrying oil and chemicals		x		
Terminology for tankships carrying liquefied gases			x	
Terminology for tank barges carrying liquefied gases				x
Principles & procedures of crude-oil-washing (COW) systems, including:				
Purpose	x			
Equipment and design	x			
Operations	x			
Safety precautions	x			
Maintenance of plant and equipment	x			
Principles & procedures of the inert-gas systems (IGSs), including:				
Purpose	x		x	
Equipment and design	x		x	
Operations	x		x	
Safety precautions	x		x	
Maintenance of plant and equipment	x		x	
Principles & procedures of vapor-control systems, including:				
Purpose	x	x	x	x
Principles	x	x	x	x
Coast Guard regulations	x	x	x	x
Hazards	x	x	x	x
Active system components	x	x	x	x
Passive system components	x	x	x	x
Operating procedures, including:				
Testing and inspection requirements	x	x	x	x
Pre-transfer procedures	x	x	x	x
Connecting sequence	x	x	x	x
Start-up sequence	x	x	x	x
Normal operations	x	x	x	x
Emergency procedures	x	x	x	x
Cargo-hazard-information systems	x	x	x	x

TABLE 13.121(F)—Continued

Course topics	1	2	3	4
Safe entry into confined spaces, including:				
Testing tank atmospheres for oxygen & hydrocarbon vapors	x	x		
Definition and hazards of confined spaces	x	x	x	x
Cargo tanks and pumprooms	x	x	x	x
Evaluation and assessment of risks and hazards	x	x	x	x
Safety precautions and procedures	x	x	x	x
Personnel protective equipment (PPE) and clothing	x	x	x	x
Maintenance of PPE	x	x	x	x
Dangers of skin contact	x	x	x	x
Inhalation of vapors	x	x		
Electricity and static electricity—hazards and precautions	x	x	x	x
Emergency procedures	x	x	x	x
Federal regulations, national standards & industry guidelines	x	x	x	x
Inspections by marine chemists & competent persons, including hot-work permits & procedures	x	x	x	x
Vessel response plans:				
Purpose, content, and location of information	x	x	x	x
Procedures for notice and mitigation of spills	x	x	x	x
Geographic-specific appendices	x	x	x	x
Vessel-specific appendices	x	x	x	x
Emergency-action checklist	x	x	x	x

Column 1—Tankerman-PIC DL.
Column 2—Tankerman-PIC (Barge) DL.
Column 3—Tankerman-PIC LG.
Column 4—Tankerman-PIC (Barge) LG.

TABLE 13.121(G)

Course topics	1	2
Elements of fire (Fire triangle):		
Fuel	X	X
Source of ignition	X	X
Oxygen	X	X
Ignition sources (general):		
Chemical	.....	X
Biological	.....	X
Physical	.....	X
Ignition sources applicable to barges	X	.....
Definitions of flammability and combustibility:		
Flammability	X	X
Ignition point	X	X
Burning temperature	X	X
Burning speed	.....	X
Thermal value	.....	X
Lower flammable limit	X	X
Upper flammable limit	X	X
Flammable range	X	X
Inerting	.....	X
Static electricity	X	X
Flash point	X	X
Auto-ignition	X	X
Spread of fire:		
By radiation	X	X
By convection	X	X
By conduction	X	X
Reactivity	X	X
Fire classifications and applicable extinguishing agents	X	X
Main causes of fires:		
Oil leakage	X	X
Smoking	X	X
Overheating pumps	X	X
Galley appliances	.....	X
Spontaneous ignition	X	X
Hot work	X	X
Electrical apparatus	.....	X
Reaction, self-heating, and auto-ignition	.....	X

TABLE 13.121(G)—Continued

Course topics	1	2
Fire prevention:		
General	X	X
Fire hazards of DL and LG	X	X
Fire detection:		
Fire- and smoke-detection systems	.....	X
Automatic fire alarms	.....	X
Firefighting equipment:		
Fire mains, hydrants	.....	X
International shore-connection	.....	X
Smothering-installations, carbon dioxide (CO_2), foam...	.....	X
Halogenated hydrocarbons	.....	X
Pressure-water spray system in special-category spaces	.....	X
Automatic sprinkler system	.....	X
Emergency fire pump, emergency generator	.....	X
Chemical-powder applicants	.....	X
General outline of required and mobile apparatus	.....	X
Fireman's outfit, personal equipment	.....	X
Breathing apparatus	.....	X
Resuscitation apparatus	.....	X
Smoke helmet or mask	.....	X
Fireproof life-line and harness	.....	X
Fire hose, nozzles, connections, and fire axes	.....	X
Fire blankets	.....	X
Portable fire extinguishers	X	X
Limitations of portable and semiportable extinguishers	X	X
Emergency procedures:		
Arrangements:		
Escape routes	X	X

TABLE 13.121(G)—Continued

Course topics	1	2
Means of gas-freeing tanks	X	X
Class A, B, and C divisions	.....	X
Inert-gas system	.....	X
Ship firefighting organization:		
General alarms	.....	X
Fire-control plans, muster stations, and duties	.....	X
Communications	.....	X
Periodic shipboard drills	.....	X
Patrol system	.....	X
Basic firefighting techniques:		
Sounding alarm	X	X
Locating and isolating fires	X	X
Stopping leakage of cargo	X	X
Jettisoning	.....	X
Inhibiting	.....	X
Cooling	.....	X
Smothering	.....	X
Sizing up situation	X	.....
Locating information on cargo	X	.....
Extinguishing	X	X
Extinguishing with portable units	X	X
Setting reflash watch	X	X
Using additional personnel	X	X
Firefighting extinguishing-agents:		
Water (solid jet, spray, fog, and flooding)	.....	X
Foam (high, medium and low expansion)	.....	X
Carbon dioxide (CO_2)	X	X
Halon	.....	X
Aqueous-film-forming foam (AFFF)	.....	X
Dry chemicals	X	X
Use of extinguisher on:		
Flammable and combustible liquids	X	X
Manifold-flange fire	X	X
Drip-pan fire	X	X
Pump fire	X	X
Drills for typical fires on barges	X	.....
Field exercises:		
Extinguish small fires using portable extinguishers:		
Electrical	X	X
Manifold-flange	X	X
Drip-pan	X	X
Pump	X	X
Use self-contained breathing apparatus	.....	X
Extinguish extensive fires with water	.....	X
Extinguish fires with foam, or chemical	.....	X
Fight fire in smoke-filled enclosed space wearing SCBA	.....	X
Extinguish fire with water fog in an enclosed space with heavy smoke	.....	X
Extinguish oil fire with fog applicator and spray nozzles, dry-chemical, or foam applicators	.....	X
Effect a rescue in a smoke-filled space while wearing breathing apparatus	.....	X

(1) Course in tank-barge firefighting.
(2) From the basic firefighting section of the IMO's Resolution A.437 (XI), ''Training of Crews in Fire Fighting''.

[CGD 79–116, 60 FR 17142, Apr. 4, 1995, as amended by CGD 79–116, 62 FR 25130, 25131, 25133, May 8, 1997]

§ 13.123 Recency of service or experience for original tankerman endorsement.

An applicant for an original tankerman endorsement in subpart B, C, D, or E of this part shall have obtained at least 25% of the qualifying service and, if the endorsement requires transfers, at least two of the qualifying transfers, within five years of the date of application.

§ 13.125 Physical requirements.

Each applicant for an original tankerman endorsement shall meet the physical requirements of §10.205(d) of this chapter, excluding paragraph (d)(2) of that section.

§ 13.127 Service: General.

(a) A service letter must be signed by the owner, operator, master, or chief engineer of the vessel and must specify—

(1) The classification of cargo (DL, LG, or, for a restricted endorsement, a specific product) handled while the applicant accumulated the service;

(2) The dates, the number and kinds of transfers the applicant has participated in, and the number of transfers that involved commencement or completion; and

(3) That the applicant has demonstrated to the satisfaction of the signer that he or she is fully capable of supervising transfers of liquid cargo, including

(i) Pre-transfer inspection;

(ii) Pre-transfer conference and execution of the Declaration of Inspection;

(iii) Connection of cargo hoses or loading-arms;

(iv) Line-up of the cargo system for loading and discharge;

(v) Start of liquid flow during loading;

(vi) Start of cargo pump and increase of pressure to normal discharge pressure;

(vii) Calculation of loading-rates;

(viii) Monitoring;

(ix) Topping-off of cargo tanks during loading;

(x) Stripping of cargo tanks;